

**MANUFACTURING
NUMBERS:**

9700800
9700810
9700820
9700830
9700840
9700850



Antunes Filtration Technologies



Cartridge Tested and Certified by NSF
International against NSF/ANSI
Standard 42 and 53 for the reduction of:

Standard No. 42: Aesthetic Effects
Nominal Particulate Reduction Class I
Standard No. 53: Health Effects
Cyst Reduction
Turbidity Reduction.

Member



TOTAL ASSURANCE PACKAGE

TAP-400 Series

P/N 1010942 10/06



Owner's Manual

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OWNER INFORMATION

General

Antunes Filtration Technologies, Division of A.J. Antunes & Co., has partnered with companies from around the globe to produce the Total Assurance Package (TAP) Series water filtration systems. The TAP Series is an innovative filtration system that uses NeoH capillary membranes as well as carbon element to provide the latest innovation in filtration technology.

This manual provides the safety, installation and operating procedures for the TAP-Series water filtration systems. We recommend that all information contained in this manual be read prior to installing and operating the system.

Your TAP-Series system is manufactured from the finest materials available and is assembled to AFT's strict quality standards. This system has been tested at the factory to ensure dependable trouble-free operation.

Warranty Information

Please read the full text of the Limited Warranty in this manual.

If the system arrives damaged, contact the carrier immediately and file a damage claim with them. Save all packing materials when filing a claim. Freight damage claims are the responsibility of the purchaser and are not covered under warranty.

The warranty **does not** extend to:

- Damages caused in shipment or damage as result of improper use.
- Installation of electrical service.
- Normal maintenance as outlined in this manual.
- Malfunction resulting from improper maintenance.
- Damage from moisture leaking into electrical components.
- Normal maintenance as outlined in this manual.
- Damage from tampering with, removal of, or changing any preset control or safety device.

IMPORTANT! Keep these instructions for future reference. If the system changes ownership, be sure this manual accompanies the equipment.

OWNER INFORMATION (continued)

Service/Technical Assistance

If you experience any problems with the installation or operation of your system, contact Antunes Filtration Technologies at **1-630-784-1000**, or toll free in the United States at **1-800-253-2991**.

Fill in the information in the next column and have it handy when calling for assistance. The serial number is on the specification plate located on the system.

Purchased From: _____

Date of Purchase: _____

Model No.: _____

Serial No.: _____

Mfg. No.: _____

IMPORTANT

A.J. Antunes and Company reserves the right to change specifications and product design without notice. Such revisions do not entitle the buyer to corresponding changes, improvements, additions or replacements for previously purchased equipment.

IMPORTANT SAFETY INFORMATION

Throughout this manual, you will find the following safety words and symbols that signify important safety issues with regards to operating or maintaining the system.

In addition to the warnings and cautions in this manual, use the following guidelines for safe operation of the system.

WARNING

GENERAL WARNING. Indicates information important to the proper operation of the equipment. Failure to observe may result in damage to the equipment and/or severe bodily injury or death.

WARNING

ELECTRICAL WARNING. Indicates information relating to possible shock hazard. Failure to observe may result in damage to the equipment and/or severe bodily injury or death.

CAUTION

GENERAL CAUTION. Indicates information important to the proper operation of the equipment. Failure to observe may result in damage to the equipment.

- Read all instructions before using equipment.
- Install or locate the equipment only for its intended use as described in this manual. Do not use corrosive chemicals in this equipment.
- Do not operate this equipment if it has a damaged cord or plug; if it is not working properly, or if it has been damaged or dropped.
- This equipment should be serviced by qualified personnel only. Contact Antunes Filtration Technologies for repair.
- Do not immerse cord or plug in water.
- Keep cord away from heated surfaces.

IMPORTANT SAFETY INFORMATION (continued)

The following warnings and cautions appear throughout this manual and should be carefully observed.

- Disconnect the power source before performing any service or maintenance on the system.
- All electrical connections must be in accordance with local electrical codes and any other applicable codes.
- **WARNING ELECTRICAL SHOCK HAZARD. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH.**
 - Do not modify the power supply cord plug. If it does not fit the outlet, have a proper outlet installed by a qualified electrician.
 - Do not use an extension cord with this appliance.
- If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person.
- This equipment is to be installed to comply with the local plumbing code and any other applicable code.
- Water pressure must not exceed the membrane differential pressure of 45 psig (3.1 bar). To reduce water pressure, install a water pressure regulator and set the system inlet water pressure to 45 psi (3.1 bar).

Protect from becoming dry

If the membrane dries out, irreversible damage to the membrane may result. Protect the filter from becoming dry by keeping it wet and sealed at all times.

Protect from freezing

If the membrane freezes during operation or storage, irreversible damage to the membrane and brittle cracking of the cartridge or housing may result.

Protect from direct sunlight or other UV sources

Avoid long-term exposure to direct sunlight or other UV sources. The filter should be stored in a dark location.

Protect from high temperatures or abrupt variation in temperature

The maximum operating temperature is 104°F (40°C). Avoid abrupt variations in temperature. Any temperature variation should be made slowly.

Protect from rough handling or dropping

Mechanical damage, external breakage, and/or internal breakage of the filter can result if the system is dropped or bumped. Handle with care at all times during transportation and installation.

Protect from organic solvents and concentrated acids

Prevent any and all contact of the membrane with strong solvents, solvents containing chlorine, or concentrated acids. Do not use strong solvents or concentrated acids on any plastic parts of the filter system. Examples of some solvents to avoid: acetone, methyl acetate (nail polish remover); hexane (spot removers); turpentine, toluene (paint thinners); dry cleaning solutions, insecticides.

Protect from abrasive material

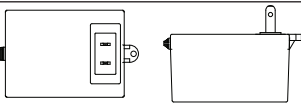
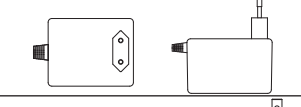
The membranes must be protected from abrasive materials like shavings left in a pipe. Abrasive materials in contact with the membrane can cause irreversible damage to the membrane. All pipes must be flushed clean before installing the filter. All plastic parts of the filter system must be protected from sharp objects like knives, sand paper or other tools. Cutting or nicking a plastic part can weaken it and cause a leak. Do not use abrasive cleansers on any plastic parts.

Protect from water hammer

The system must be protected from shock, pressure surges, or pulsation that may occur inside water pipes. Water hammer occurs in pipes when a valve or faucet shuts quickly. Install a water hammer arrestor (pressure vessel containing compressed air separated from the water by a diaphragm) to reduce pressure shock.

SPECIFICATIONS

Electrical Cord & Plug Configurations

Kit Model Number	Description	Configuration
7000525	120 VAC., NEMA 1-15P, 500mA	
7000524	230 VAC., CEE 7/16, 500mA	
7000523	220 VAC., HKH-01, 500mA	

Replacement Cartridges

Replacement		Part Number
TAP-420 Series	Ultrafilter L-420	7000411
TAP-440 Series	Ultrafilter L-440	7000412
TAP-421, 441	Single pack Carbon	7000669
TAP-422, 442	Dual pack Carbon	7000670

⚠ CAUTION ⚠

All electrical connections must be in accordance with local electrical codes and any other applicable codes.

Dimensions - TAP-442

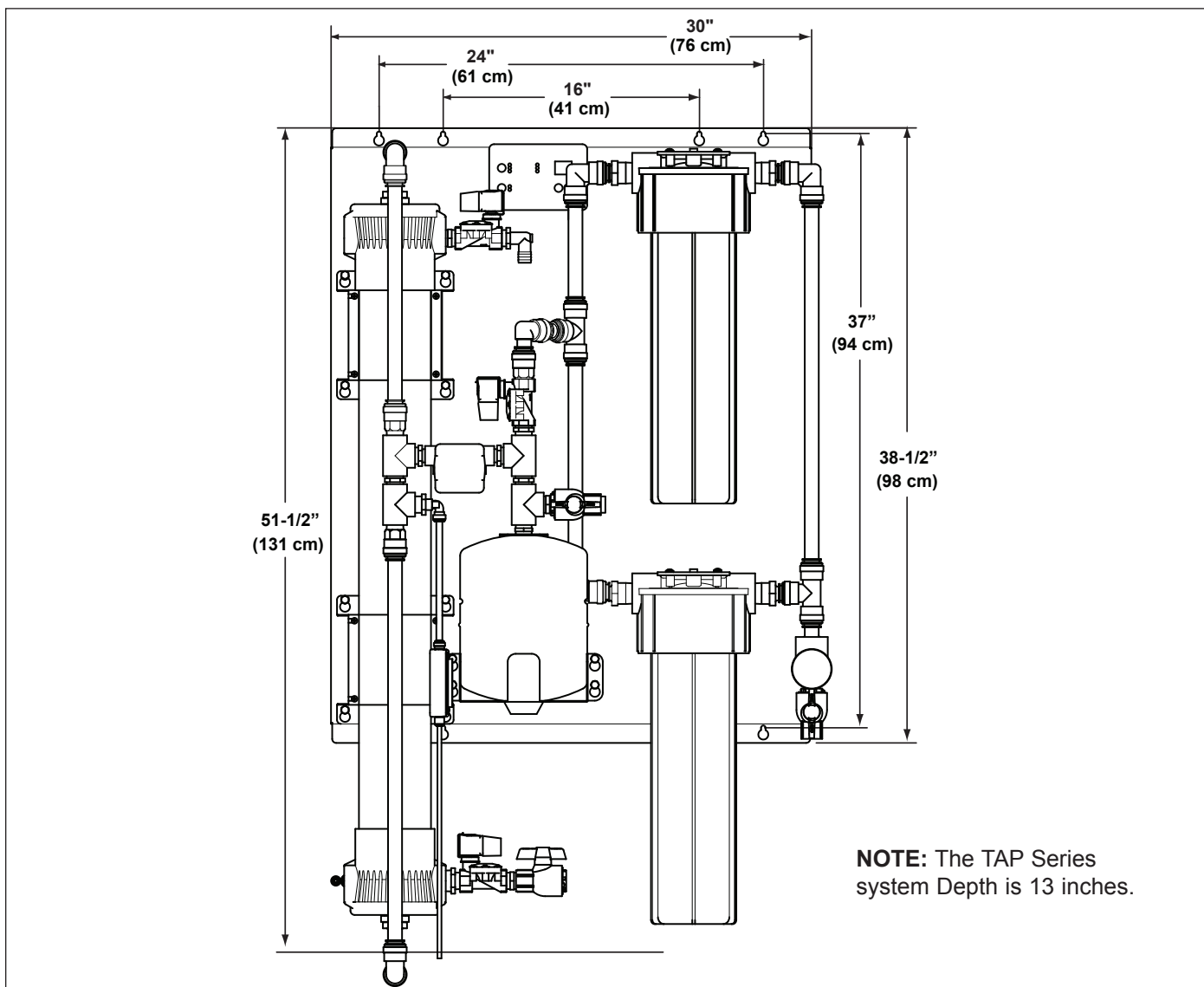


Figure 1. Dimensions

SPECIFICATIONS (continued)

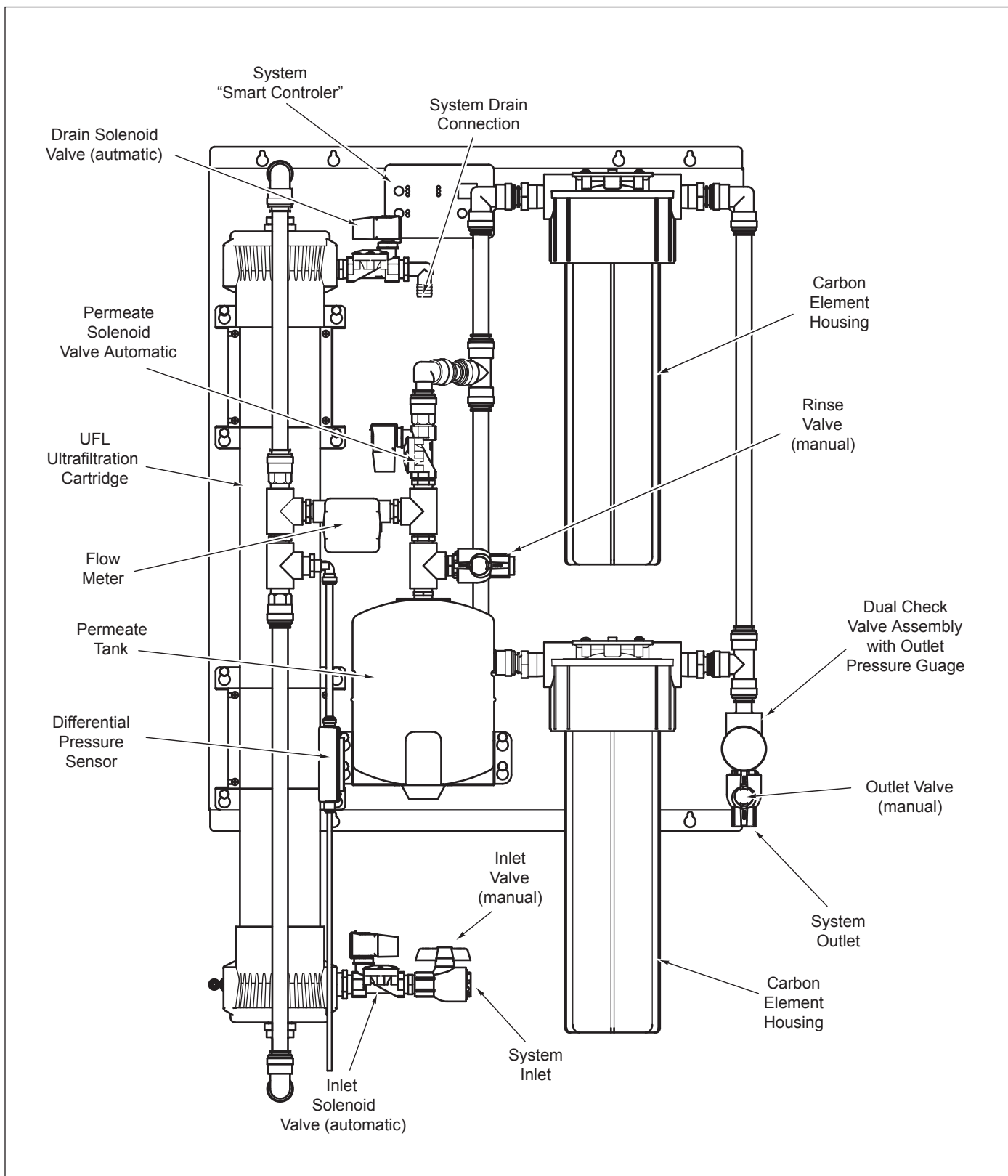


Figure 1. TAP-442 System Components

PERFORMANCE DATA SHEET
Filter Cartridge Capacities

Maximum Operating Pressure	100 psig (690 kPa)
Maximum Operating Temp.	104°F (40°C)
Minimum Operating Temp.	40° F (4° C)
Maximum Membrane Differential Pressure	45 PSI (3.1 Bar)
pH Range	3-10
MWCO	100 kD



Cartridge Tested and Certified by NSF International against NSF/ANSI Standard 42 and 53 for the reduction of:

Standard No. 42: Aesthetic Effects
Nominal Particulate Reduction Class I
Standard No. 53: Health Effects
Cyst Reduction
Turbidity Reduction

System Capacities

Model Mfg. No.	Gal./Liters Per Min. (max)	Carbon Element Capacity	UF Length	Number of Carbons
TAP-420 9710800	5 gal. (19 liters)	0	20 in. (51 cm)	0
TAP-421 9700810		60,000 gal. (227,000 liters)		1
TAP-422 9700820		120,000 gal. (454,000 liters)		2
TAP-440 9700830	10 gal. (38 liters)	0	40 in. (102 cm)	0
TAP-441 9700840		60,000 gal. (227,000 liters)		1
TAP-442 9700850		120,000 gal. (454,000 liters)		2

Cartridge has been tested according to NSF/ANSI Standard 42 and 53 for reduction of the substances listed below. The concentration of the indicated substances in water entering the system was reduced to a concentration less than or equal to the permissible limit for water leaving the system, as specified in NSF/ANSI 42 or 53. While testing was performed under standard laboratory conditions, actual performance may vary.

Performance Claims for Percent Reduction

Substance	Influent Challenge Concentration	Reduction Requirement
cyst ¹	minimum 50,000/L	99.95%
Turbidity	11+/1 NTU	≤ 0.5 NTU
Particulate Class I Particles 0.5 to < 1µm	at least 10,000 particles /mL	85%

¹based on the use of microspheres or *Cryptosporium parvum* oocysts

NOTE: The NSF Information provided above applies to the TAP system's Ultra-Filter Cartridge.

WATER CONDITION EQUIPMENT GUIDELINES

The following table describes the required or recommended equipment to be used with your filtration system based on the Inlet Water Pressure and Inlet Turbidity.

If your Inlet Water Pressure (PSI) is...	And your Inlet Turbidity (NTU) is...	Then the Additional Equipment required or recommended is...
Less than 45 psi	Less than 1 NTU	<i>Required:</i> No additional equipment. <i>Recommended:</i> Inlet Water Strainer (180 micron/80 mesh screen)
Greater than 45 psi	Less than 1 NTU	<i>Required:</i> Pressure Regulator <i>Recommended:</i> Inlet Water Strainer (180 micron/80 mesh screen)
Less than 45 psi	Greater than 1 NTU	<i>Required:</i> Inlet Water Strainer (180 micron/80 mesh screen)
Greater than 45 psi	Greater than 1 NTU	<i>Required:</i> Inlet Water Strainer (180 micron/80 mesh screen)

INSTALLATION

System Overview

The TAP System has two components that improve the quality of the water. The first (UFL-420/440 ultrafilter) removes particulate material, cysts, bacteria, and virus. The second (carbon elements) remove chlorine, tastes and odors. The TAP system is designed to be self-cleaning by use of solenoid valves, sensing components, and a Smart Controller.

Unpacking

Open the large box. It should contain the following components:

- Plate mounted TAP-400 Series system with UFL cartridge installed
- One Dual Check Valve assembly with gauge
- Two clear Carbon Element Housings with Carbon Elements installed
- One 20 foot coil of flexible hose
- One accessory bag containing filter wrench and hose clamps
- Owner's Manual

NOTE: The system is also shipped with the power transformer selected at time of purchase.

Remove all packing materials and protective coverings from the system.

Remove the information packet. To prevent any delay in obtaining warranty coverage, fill out and mail the warranty card.

NOTE: If any parts are damaged, contact Antunes Filtration Technologies IMMEDIATELY at 800-253-2991 (toll free in the U.S. and Canada) or 630-784-1000.

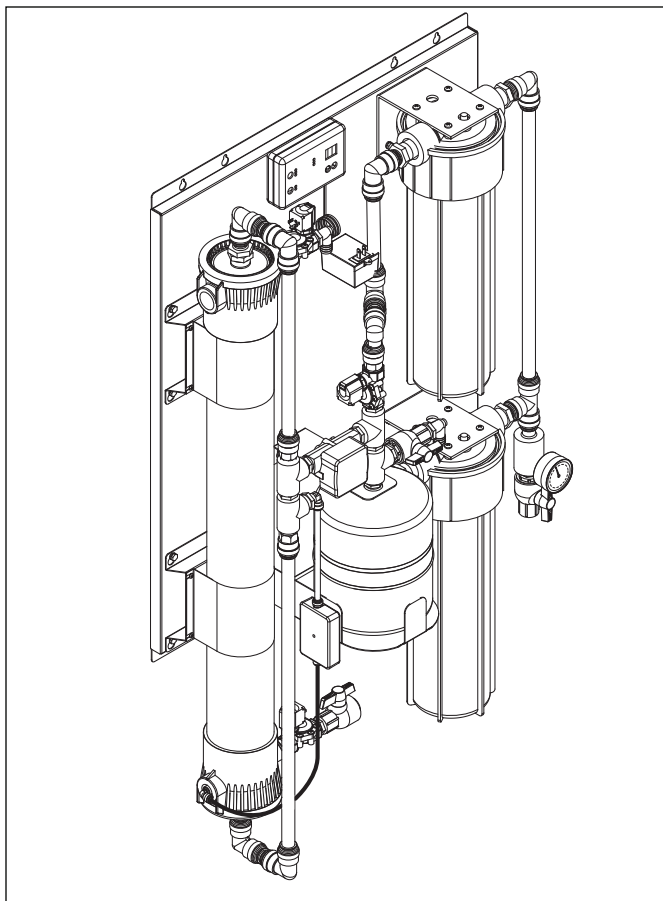


Figure 2. TAP System

INSTALLATION (continued)

Equipment Setup

GENERAL

When placing the system into service, pay attention to the following guidelines:

- Do not immerse cord or plug in water.
- Keep cord away from heated surfaces.

ELECTRICAL

Ensure the line voltage corresponds to the stated voltage on the specification label. Make sure the plug on the power cord matches the appropriate outlet. For proper operation, and to ensure the highest quality water, do not connect the system to a switched electrical outlet.

PLUMBING

NOTE: The TAP system is designed to use tap water not to exceed 104°F (40°C) or 45 psig (310 kPa).

NOTE: The system must be connected to the **COLD** water line. Do not connect the system to the hot water line.

The TAP system uses the following connections (Fig. 1):

- System Inlet 1/2" NPT
- System Outlet (Product Water) 1/2" NPT
- Drain 3/4" NPT
- Rinse Outlet 3/4" GHT (Garden Hose)

When making a plumbing connection to the system, use a back-up wrench on the supporting plumbing. Always use a quality, approved pipe sealant or Teflon® tape on pipe threads. Be careful not to get the pipe sealant inside the pipe when making connections.

DO NOT over tighten the connections. Use plastic fittings when connecting to the plastic connections of the system. This reduces the possibility of cracking the connections due to overtightening.

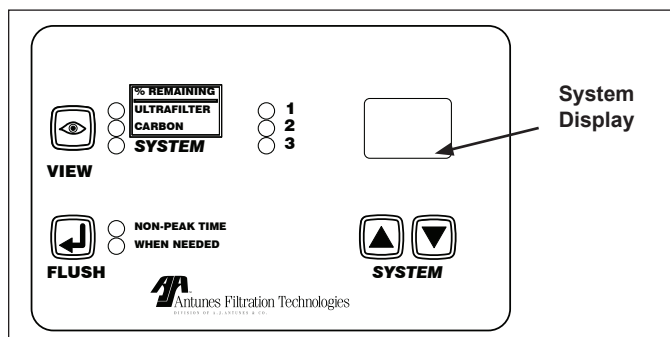


Figure 3. TAP System Control Panel

If soldered plumbing is used, do not apply heat to, or near, the filtration system. The use of union (O-ring seal) connections is highly recommended for ease of installation and future servicing.

SUGGESTED TOOLS AND SUPPLIES FOR INSTALLATION

The following tools and supplies are suggested to make the installation easier:

- Screwdriver
- Adjustable Wrenches
- Drill with Bits
- Level
- Tape Measure
- Pipe dope or Teflon® tape
- Two Gallon Bucket
- Fresh 5-1/4% liquid chlorine bleach (such as Clorox®)
- Pipe Wrenches
- Garden Hose, 3/4"

⚠ CAUTION ⚠

This equipment is to be installed to comply with the basic plumbing code of the Building Officials and Code Administrators, Inc. (BOCA) and the Food Service Sanitation Manual of the Food and Drug Administration (FDA).

⚠ CAUTION ⚠

Water pressure must not exceed a membrane differential pressure of 45 psig. To reduce water pressure, install a water pressure regulator and set the water pressure to 45 psi.

FLOW REGULATOR ASSEMBLY

The TAP system uses a Water Flow Regulator Assembly that controls the flow of water into the unit. This assembly consists of a white threaded male connector and a color-coded Flow Regulator. The unit **MUST** be operated with the appropriate Water Flow Regulator Assembly.

TAP-440, 441, and 442 Units: Use a **BLACK** and **WHITE** Water Flow Regulator Assembly (10 gpm - gallons per minute)

TAP-420, 421, and 422 Units: Use a **GREEN** and **WHITE** Water Flow Regulator Assembly (5 gpm)

⚠ CAUTION ⚠

Water Flow Regulator Assemblies are **NOT** interchangeable. Operating the system with the wrong Water Flow Regulator or without a regulator can damage the system, cause personal injury, and voids the warranty!

INSTALLATION (continued)

INLET WATER PLUMBING

If desired, a “T” or Cross Fitting with cap or plug can be installed between the Inlet Valve and the System Inlet. This fitting can be used for draining and sanitizing the system and downstream plumbing.

The plumbing leading to the system must be flushed clear of all debris before connecting to the system inlet. Hold a bucket at the inlet water line and slowly open the inlet water valve. Allow the pipe to flush until all debris is removed.

DRAIN LINE PLUMBING

The drain line is used to flush away the particle buildup when cleaning the ultra filter.

The drain line must be able to support the flow rate when the system flushes. The flow rate from the flush depends on the inlet water pressure, inlet pipe size, and system selected. The drain line should be as large or larger than the inlet plumbing line. The drain line should be as short as possible, sloping downward without kinks or loops. Be sure the drain used is not blocked or restricted.

Protect the system from possible back contamination by installing an air gap between the drain connection of the system and the drain (Figure 4). This gap in the line, with no physical contact between the system and drain, prevents contamination of the system in the event of a backed-up drain.

NOTE: Make sure the end of the drain line is positioned and secured at least 2 inches above the drain so that the water flow is directed into the drain without splashing.

⚠ CAUTION ⚠

Due to its weight and size, the TAP system should be mounted by 2 or more individuals.

Mounting the System

Before mounting the TAP system, please consider the items listed in **Mounting Requirements**.

MOUNTING REQUIREMENTS

- The system must be mounted with sufficient access for cartridge replacement. The TAP system is 30 inches wide, 51-1/2 inches tall, and 13 inches deep. The system should be mounted as close to the ceiling as possible to allow proper access when changing cartridges.
- The system must be mounted with mounting hardware capable of supporting 120 lbs or more of weight.
- The system must be mounted near an appropriate electrical outlet.
- The system must be mounted near a drain for flushing operations.
- The system must be installed in front of all consumable water filtration processes.

The TAP System is pre-assembled to a back plate. The back plate has mounting holes (16” and 24” on-center) on the top and bottom. Be sure to use both top and bottom mounting holes to support the weight of the system. Some mounting holes are covered by the UFL Cartridge. Plan your mounting accordingly..

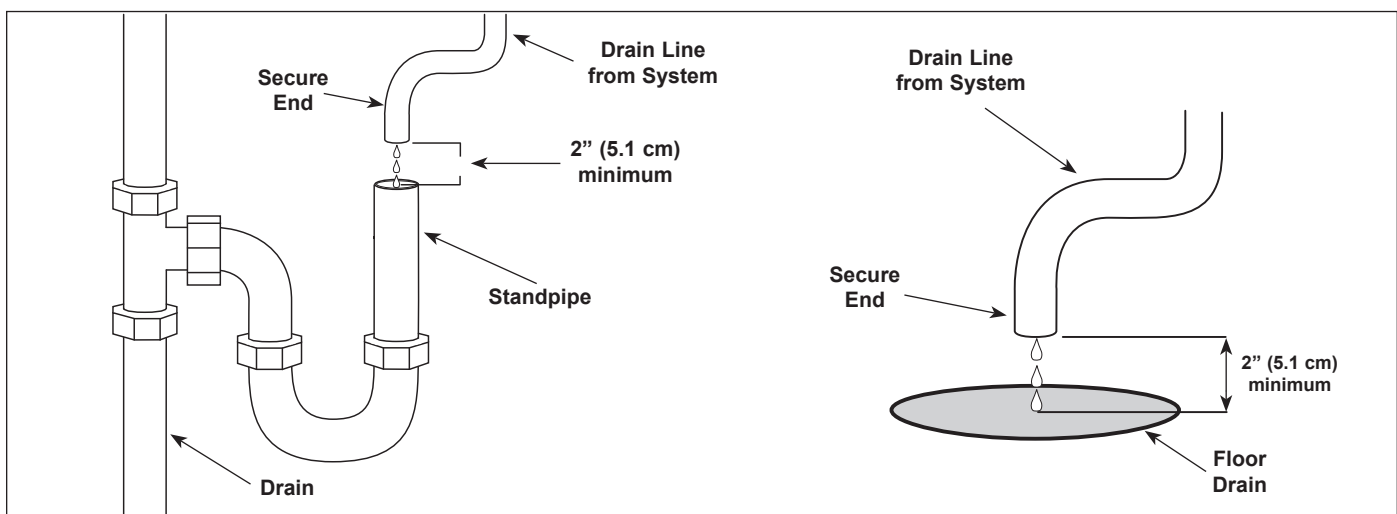


Figure 4. Proper Draining

INSTALLATION (continued)

Attaching the Check Valve Assembly

The system is shipped with a Dual Check Valve assembly attached to the system outlet (Figure 5). This assembly can be detached from the system for ease of mounting, but must be reattached to the system after mounting. Refer to Figure 4 and follow these steps:

1. Insert the Dual Check Valve assembly into the System Outlet.
2. Make sure the Dual Check Valve assembly is fully inserted into the System Outlet fitting.

NOTE: Do not remove the pipe nipple and the connected System Outlet Valve from the Dual Check Valve assembly.

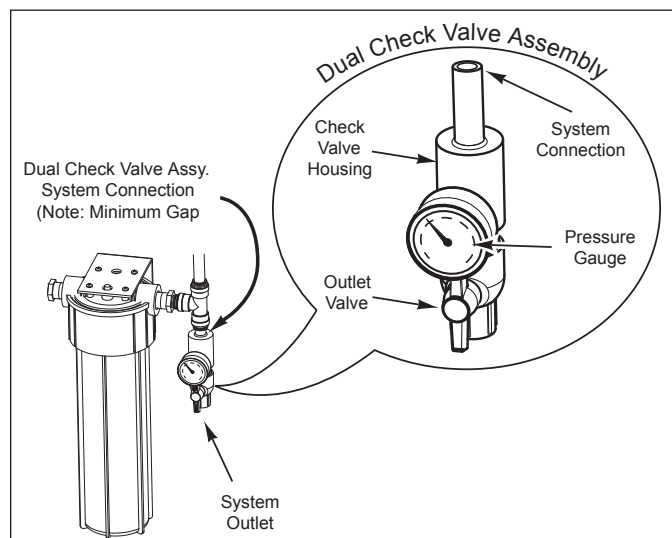


Figure 5 Dual Check Valve Assembly

Attaching the Drain Hosing

The TAP System is shipped with a coil of flexible hose (20 feet) designed to direct the Drain Valve Solenoid water to the drain. Refer to Figure 6 and follow these steps:

1. Cut the flexible hose (provided) so that the hose reaches the drain from the appropriate valve.
2. Connect one end of the hose to the barbed fitting on the Drain Valve Solenoid and secure with one of the provided hose clamps.
3. Direct the other end of this hose to the drain.

NOTE: The drain MUST be able to accommodate a drain flow 10 gpm. The drain hose MUST have an air gap between the end of the hose and the drain.

Attaching the Rinse Hose

The TAP system has a standard 3/4" garden hose connection at the Rinse Valve. A 3/4" garden hose (not supplied) long enough to reach from this connection to the drain should be used for rinsing. Be sure to install a gasket in the hose end before attaching to the system.

1. Connect the end of the garden hose to the fitting on the rinse valve and tighten. Use a back-up wrench on the fitting if required.
2. Direct the other end of the hose to the drain. Secure as necessary.

NOTE: the drain MUST be able to accommodate a flow of 10 gpm.

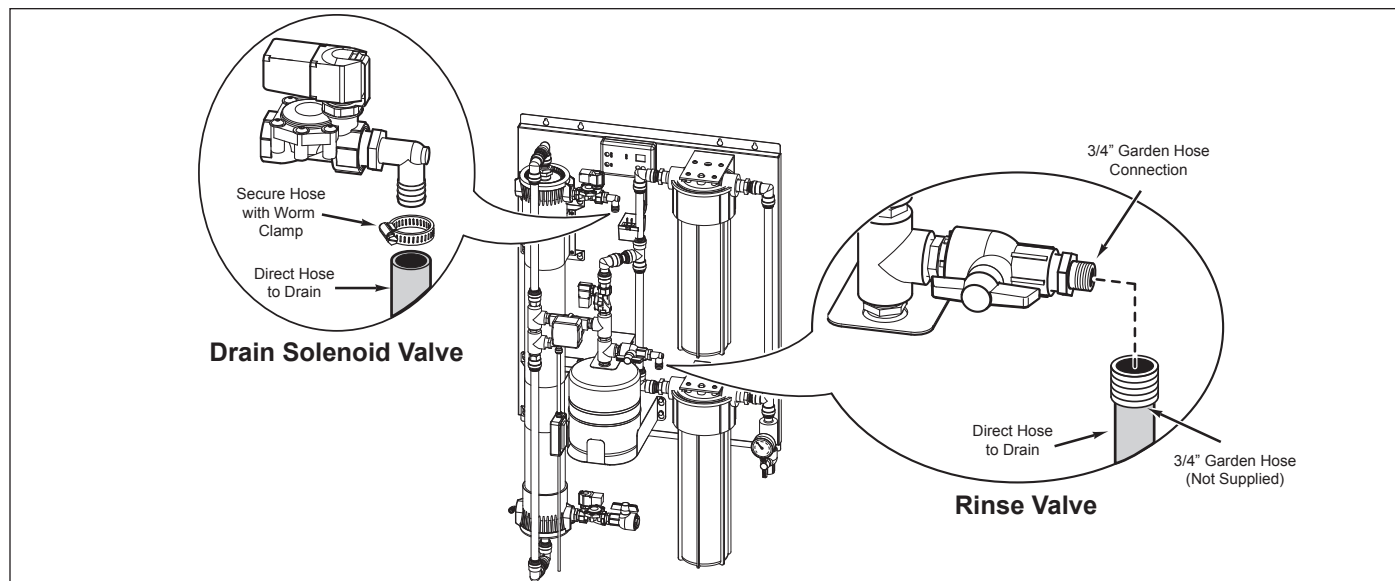


Figure 6 Attaching the Drain Hose

INSTALLATION (continued)

Attaching to the System Inlet

The System Inlet (Figure 7) has a 1/2" NPT female thread at the Inlet Valve. **Be careful not to over tighten a fitting onto the System Inlet valve. The plastic ball valve can be cracked due to over tightening a fitting into the valve.** Use a plastic fitting to connect to the System Inlet. Use an approved pipe thread sealant that is approved for use on PVC fittings.

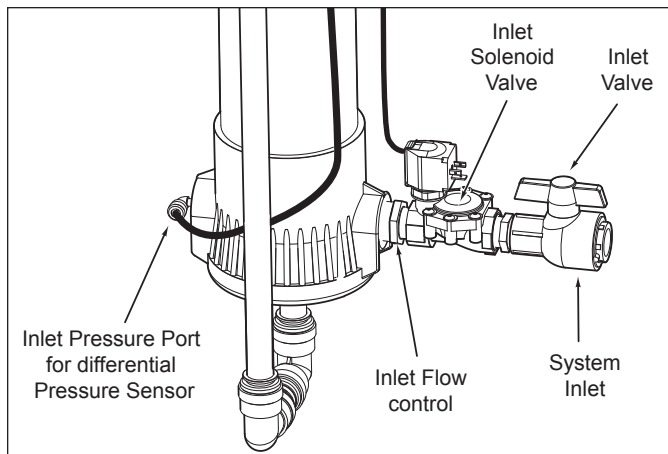


Figure 7. TAP System Inlet Assembly

Attaching to the Filtered Water Permeate Outlet

The system outlet (Figure 8) has a 1/2" NPT female thread at the Outlet Valve. **Be careful not to over tighten a fitting onto the Outlet Valve. The plastic ball valve can be cracked due to over tightening a fitting into the valve.**

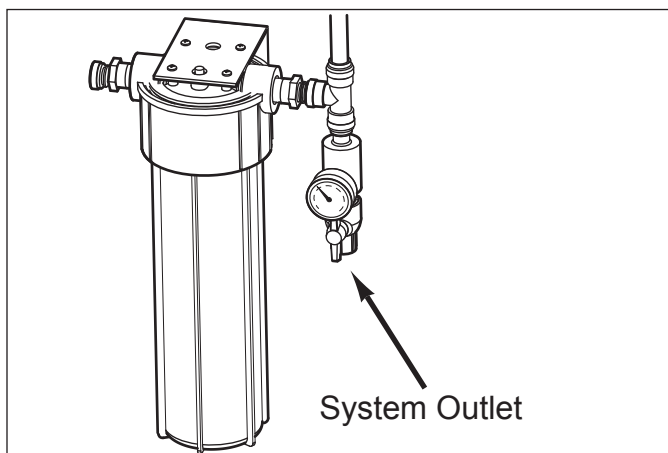


Figure 8. TAP System Outlet

It is recommended that a plastic fitting be used in the outlet. Use a drinking water-approved pipe thread sealant that is approved for use on PVC fittings.

⚠ CAUTION ⚠

Do not use the Rinse Valve connection for consumable water. Because the Carbon Elements are after the Rinse Valve, the Rinse Valve water may have an objectionable taste.

Starting the System

NOTE: Be sure that ALL ball valves are closed before starting the system.

Follow these steps to power up the system:

1. After the system is mounted, connect the power supply to the bottom right of the Smart Controller.
2. Plug the wall transformer into an appropriate outlet that has power to it at all times.

NOTE: Do not plug the power cord into an outlet that will be switched off. Failure to supply power to the system at all times may result in short cartridge life or bad tasting water.

NOTE: The system is designed to supply water even with the power off. However, with power off, the system will not flush or monitor any usage.

3. When powering up the controller for the first time, the internal clock must be set before any other action can take place. The unit beeps as a reminder to set the internal clock.
 - a. Press and hold (in order) the **VIEW**, and **▲** buttons until the red **SYSTEM** LED illuminates and "--" appears on the display. The unit stops beeping.
 - b. Release all buttons. The system displays "--".
 - c. Use the **▲** or **▼** buttons to scroll to "01" and press the **FLUSH** button to start the Clock Set program.
 - d. Use the **▲** and **▼** buttons to set the local date and time and press the **FLUSH** button after each selection. The clock should be set to local time in the following format:

YY; MM; DD; HH (0-23); MM

NOTE: The clock uses 24 hour time to tell the difference between AM and PM. For example: If the local time is 3:45 PM on July 4, 2006, the clock would be set as: 06; 07; 04; 15: 45.

INSTALLATION (continued)

Rinsing the Ultrafilter Cartridge

The UFL-440 ultrafilter cartridge is pre-installed with the TAP system before shipment. This cartridge must be rinsed before placing the system into operation.

The UFL-440 cartridge should be rinsed using the “**06 (Rinse New UFL Membrane Program)**” from the Service Menu (described below).

NOTE: The system must be rinsed to remove air and the shipping/storage solution. For maximum quality, the permeate water produced during the rinsing procedure must be discarded. Direct the permeate water produced from this rinsing operation to drain.



Ingesting the protective solution may cause irritation of the gastrointestinal tract, colic, diarrhea, or other similar symptoms.

Follow these steps to rinse the ultrafilter cartridge.

1. **Manually** close the Inlet Valve (Figure 2).
2. Make sure a drain hose is connected to the Rinse Valve and that the hose is directed to a drain.
3. **Manually** open the Rinse Valve (Figure 2).
4. To enter the **06 (Rinse New UFL Membrane Program)**, press and hold (in order) the **VIEW**, and **▲** buttons until the red **SYSTEM** LED illuminates and “--” appears on the display (Figure 3).

5. Use the **▲** button to scroll up to “**06**” and press the **FLUSH** button to start the rinse program.

The system displays **d3** and begins to depressurize (the system automatically closes the Inlet Valve and the Permeate Valve and opens the Drain Valve).

6. **Manually** open the Inlet Valve. Press the **FLUSH** button to start the **r1** stage (Open Inlet Valve stage).

Wait for 1 minute. Water flows through the UFL cartridge and out of the Drain Valve and the Rinse Valve. After 1 minute, **r1** flashes on the display and the system beeps.

7. Press the **FLUSH** button. The system starts **r2** stage to automatically close the Drain Solenoid Valve (Close Drain Solenoid Valve stage).

Wait for 15 minutes. Water flows through the UFL cartridge and out of the Rinse Valve. After 15 minutes, **r2** flashes on the display and the system beeps.

Manually close the Rinse Valve.

8. Press the **FLUSH** button to start the **r3** stage (No Flow stage).

Wait for 15 minutes. The UFL cartridge remains under pressure without water flow. After 15 minutes, **r3** flashes on the display and the system beeps.

Manually open the Rinse Valve.

9. Press the **FLUSH** button to start the **r4** stage (Rinse Flow stage).

Wait 5 minutes. Water flows through the UFL cartridge and out of the Rinse Valve. After 5 minutes, **r4** flashes on the display and the system beeps.

Manually close the Rinse Valve.

10. Press the **FLUSH** button to start the **r5** stage (Open Drain Solenoid Valve stage).

Wait for 1 minute. Water flows through the UFL housing and out of the Drain Solenoid Valve.

11. The system then begins the **r6** stage (Close Inlet Solenoid Valve stage). The system completes depressurization and displays **d3**.
12. The system must then be repressurized using the **08 (Pressurize System)** program. To enter the program, press and hold (in order) the **VIEW** and **▲** buttons until the red **SYSTEM** LED illuminates and “--” appears on the display.
13. Use the **▲** button to scroll up to “**08**” and press the **FLUSH** button to start the Pressurize System program.

The system repressurizes and makes water available through the system.

INSTALLATION (continued)

Rinsing the Carbon Elements and Plumbing

The Carbon elements are pre-installed in the clear Carbon Element Housings before shipment.

Before placing the system into operation, the Carbon Elements should be rinsed using the procedure below.

NOTE: To ensure that the highest quality water is produced from the system, the Carbon Elements and plumbing leading from the filter system must be flushed clear of carbon fines and other debris.

1. Direct water from the System Outlet to a drain.
2. Turn on the water to the system. Allow water to flow through the Carbon Elements and Carbon Element Housings to flush out trapped air and any debris that may be present.

To help remove trapped air from the Carbon Element Housings, press the red button on the top of both housings until water just begins to come out of the button.

3. Flush the Carbon Elements for at least 5 minutes.

Note: Do not consume the water used for flushing the carbon elements.

4. When the Carbon Element flushing is complete, turn off the water to the system and reconnect the water to service. The system is now ready for use.

For new piping installations: After making the connection to the System Outlet, open the faucet or tap closest to the filter system, then slowly open the Inlet Valve. Allow the pipe to flush until all debris is removed.

Sanitizing the System and Lines

The plumbing must be sanitized to eliminate possible contamination that may have occurred during the installation process.

Liquid chlorine bleach (regular bleach, unscented 6 % sodium hypochlorite) can be used to sanitize the plumbing. The amount of bleach to use depends on the system installed and the amount of plumbing downstream of the TAP system.

Generally, one ounce (30 ml) of bleach is sufficient to sanitize the system and associated plumbing. Make sure to follow any handling or safety instructions supplied with the bleach.

1. Follow the procedures in the *Rinsing the Ultrafilter Cartridge* section of this manual.

NOTE: When sanitizing a system with carbon elements, make sure the carbon elements are removed from their housings before sanitizing.

2. Shut off the water to the TAP system and open the faucet closest downstream to the system. Allow the system and plumbing to depressurize and drain. If an inlet sanitation fitting is installed, remove the plug or disconnect the water line at the inlet of the system. Allow the water to drain out of the system.
3. Pour the bleach into the inlet sanitation fitting or inlet water line using a cup or funnel. Be careful not to spill bleach onto clothing or skin.
4. Reattach the plug on the sanitation fitting or inlet water line.
5. Slowly turn on the water supply and pressurize the system. Allow water to flow out of the open tap until the smell of bleach is present.
6. Close the tap and let the system stand without water flow for at least 15 minutes to allow the bleach to sanitize the pipes.
7. After 15 minutes without water flow, open the tap and flush until the presence of bleach is gone. Open all other taps in line with the system to flush any bleach from the plumbing.
8. Close the taps and depressurize the system. Reinstall the carbon elements or install new carbon elements. Repressurize the system.
9. Press the **FLUSH** button to remove any trapped air or any remaining bleach.
10. Sanitation is complete.

OPERATION

Operation

The TAP system is designed to operate with little to no user intervention. The system monitors and flushes itself automatically.

Manual Flushing

The TAP system is designed to automatically flush but can also be manually flushed when desired. To manually flush the system:

1. Press and hold the **FLUSH** button for 3 to 4 seconds.
2. The system enters the **FLUSH** program and automatically performs the following stages while displaying the stage name on the display throughout the Flush process:
 - **F1** (Close Permeate Solenoid Valve stage)
 - **F2** (Close Inlet Solenoid Valve stage)
 - **F3** (Open Drain Solenoid Valve stage)
 - **F4** (Open Inlet Solenoid Valve stage)
 - **F5** (Close Drain Solenoid Valve stage)
 - **F6** (Open Permeate Solenoid Valve stage)

NOTE: The system automatically performs these stages

3. Flushing is complete once the system completes the **F6** stage of the **FLUSH** program.

System Power Loss

The TAP system is designed to run with constant power. Thus, the power cord should always be plugged into an appropriate power outlet that will not be switched off.

In the event of a power loss, the TAP System:

1. Aborts any active valve program.
2. Resets the valves to normal operation (pressurized/water available).
3. Sounds an alert to notify the operator of the power loss.
4. Records the time of the power loss into the controller memory.
5. Displays the **EV-20** event code (indicating a loss of power).

The system beeps 4 times every 10 seconds for approximately 2 minutes. Then it beeps once every 30 seconds.

To turn off the audio alert, press and release both the ▲ and ▼ buttons at the same time.

NOTE: Be sure to restore power to the system. The system displays the **EV-21** code when power is restored to the system.

⚠ CAUTION ⚠

The system will continue to filter water even after a power loss but it will **NOT** flush. Therefore, running the system without power may shorten the life of the filtration elements. Make sure the system always has power.

Viewing Filtration Element Data

The TAP system monitors the lifespan of the filtration elements and can display the percent-of-life remaining for the selected component.

Press the **VIEW** button to cycle through the Ultrafilter and Carbon LEDs. Pressing the **VIEW** button again steps to the next component.

The system displays the percent-of-life remaining for the selected component in the display.

Viewing Sensor Readings

The TAP System uses the Flow Meter and Differential Pressure Sensor to monitor the Flow Rate and Differential Water Pressure respectively.

The system also uses measurements to determine when to automatically flush and monitors the effectiveness of the flush operations. To view this data:

1. Simultaneously press both the **VIEW** and ▼ buttons. The Red LED illuminates.
2. Press the **VIEW** button to scroll through the green LEDs (numbered 1, 2, and 3) which indicate the following data:
 - **LED 1** (top): Used to determine when the system automatically flushes and measures the effectiveness of flush operations.
 - **LED 2** (middle): Flow Rate, in gallons per minute (gpm)
 - **LED 3** (bottom): Differential Water Pressure, in pounds per square inch (psi)
3. To exit, press the **FLUSH** button until the red LED turns off.

MAINTENANCE

Replacing Carbon Elements

The carbon elements must be rinsed to remove Carbon fines due to manufacturing and shipping. For maximum quality, the permeate water produced during the rinsing procedure must be discarded. Direct the permeate water produced from this rinsing operation to drain.

1. Turn off water to the system by closing both the Inlet valve and Outlet valve.
2. Next, depressurized the system using the **"03 (Change Carbon Element)"** program. Simultaneously press the **VIEW** and **▲** buttons. The red system LED illuminates and the system displays "--" on the display. Use the **▲** and **▼** buttons to scroll to **03** and press the **FLUSH** button.

The system automatically performs the **03** program, which consists of the following stages:

- **C1** (Close Inlet Valve stage)
- **C2** (Open Drain Valve stage)
- **C3** (Open Permeate Valve stage)

3. When the **03** program completes, remove the bottom Carbon Element Housing. Empty any water into a drain and discard the old Carbon Element. See Figure 9.

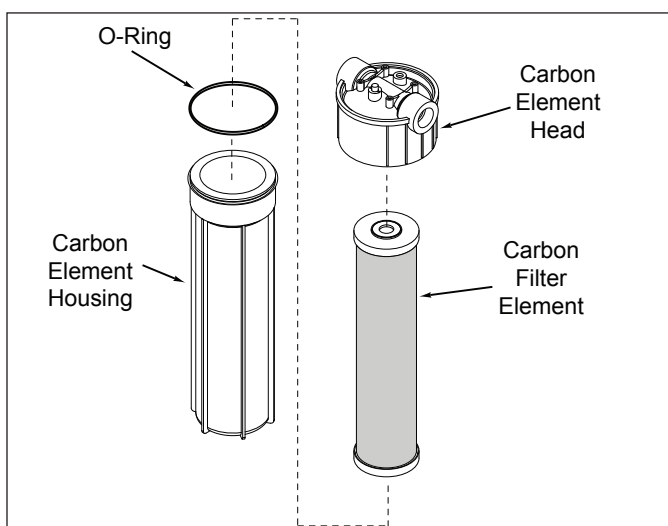


Figure 9. Replacing the TAP Carbon Element

4. Inspect the o-ring on the Carbon Element Housing. Replace the o-ring if it is cracked, twisted, or missing.

5. Lubricate the o-ring with an approved food grade lubricant and install into the Carbon Element Housing.
6. Install the new Carbon Element into the Carbon Element Housing.

Note: Make sure that the end seal gaskets are in place on both ends of the carbon element. The gasket is retained on the end of the element in the recessed groove. Be careful that the gasket does not fall off the element while placing the element into the bowl.

7. Screw the Carbon Element Housing (containing the Carbon Element) into place. Tighten the Carbon Element Housing until it stops. The housing will come to a hard stop at the end of the thread. Use a filter wrench if necessary.
8. Repeat Steps 3 through 7 for the other Carbon Element Housing and Carbon Element.
9. Direct the outlet of the system to drain.

NOTE: It is important to direct the system outlet to drain as the water resulting from Steps 10 through 15 should NOT be used.

10. Next, the system must be repressurized using the **"08 (Pressurize System)"** program. To enter the program, press and hold (in order) the **VIEW** and **▲** buttons until the red **SYSTEM** LED illuminates and "--" appears on the display.
11. Use the **▲** or **▼** buttons to scroll to **"08"** and press the **FLUSH** button to start the Pressurize System program. This allows the system to pressurize when the Inlet valve is opened and make water available to the Carbon Elements.
12. Turn on the water to the system by opening the Inlet Valve and allow water to flow through the Carbon Elements and Housings to rinse out trapped air and any carbon fines that may be present.

To help remove trapped air from the Carbon Element Housings, press the red button on the top of both housings until water just begins to come out of the button.

13. Rinse the Carbon Elements for at least 5 minutes.

MAINTENANCE (continued)

NOTE: Do not consume the water used for rinsing the Carbon Elements.

14. When the Carbon element rinsing is complete, **manually** close the Inlet Valve and reconnect the water to service.
15. When the system is reconnected, turn on the water by **manually** opening the Inlet Valve and Outlet Valve. The system is ready for use.

Replacing the Ultrafilter Cartridge

Note: It is strongly recommended that new carbon elements be installed after a UFL cartridge is changed.

1. Depressurize the system using the “**07** - (Depressurize UFL System)” program. Simultaneously press the **VIEW** and **▲** buttons. The red system LED illuminates and the system displays “--” on the display. Use the **▲** and **▼** buttons to scroll to **07** and press the **FLUSH** button.

The system performs the **07** program, which consists of the following stages:

- **d1** (Close Inlet Valve stage)
- **d2** (Open Drain Valve stage)
- **d3** (Close Permeate Valve stage)

2. When the **07** program completes, place a bucket under the Ultra Filter Housing. Open the Inlet Drain Valve to drain the system.

NOTE: Make sure there is enough room below the system to remove the cartridge.

3. Remove the Snap Ring on the bottom end of the ultrafilter housing. Grab the raised lug with a pair of pliers and pull towards the center of the end cap and away. The ring should lift out of its groove.
4. See Figure 10. The lower End Cap, End Cap O-ring, and Cartridge should easily drop down out of the housing. If not, pull gently on the end cap to remove the cartridge.

NOTE: If the cartridge does not easily come out of the housing, the top End Cap can also be removed for assistance during Step 4.

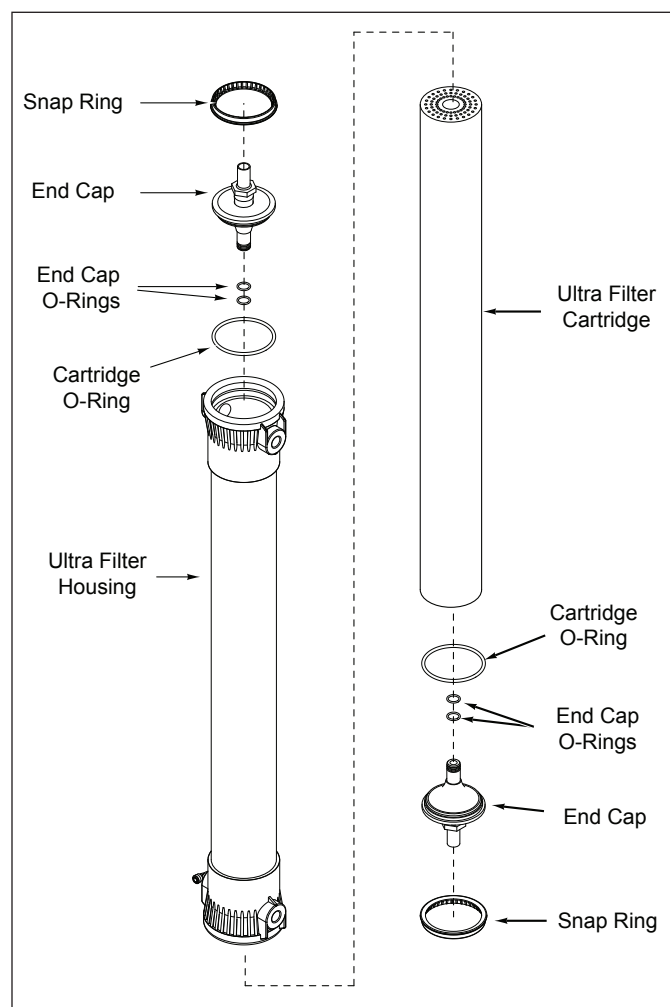


Figure 10. Replacing the Ultra Filter Element

MAINTENANCE (continued)

5. Inspect the cartridge O-rings and end cap O-ring for nicks or cuts. Replace as needed.
6. Lubricate all O-rings with a food-grade silicone lubricant (Figure 9). Apply a light coating of lubricant to the inside center tube at both ends of the new cartridge.

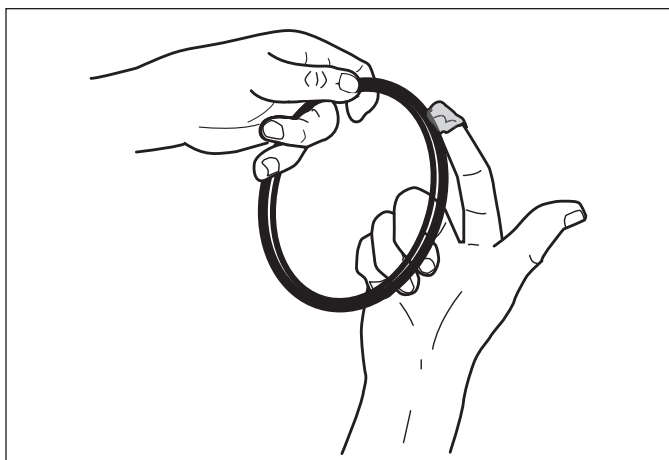


Figure 9. Lubricating O-Rings

7. Record the serial number of the new cartridge. The cartridge serial number is engraved on one end of the outer tube (for example: 05K 12013).
8. Install the End Cap O-ring on the End Cap and insert the End Cap into the end of the new cartridge.
9. Position the new cartridge and End Cap below the housing and gently insert into the housing.

10. Press the End Cap into position until it is fully seated and the Snap Ring groove is visible.
11. Install the Snap Ring by guiding the non-lugged end into the groove first, pushing outward and working around the ring until it snaps into place.

NOTE: Make sure that the Snap Ring is fully seated before turning the water on.

12. The new filtration cartridge must be rinsed before operation. Follow the **Rinsing the Ultrafilter Cartridge** and **Sanitizing the System and Lines** procedures in the Installation section of this manual to complete the cartridge change.
13. When rinsing is complete, the system must then be repressurized. Use the ▲ or ▼ buttons to scroll to "08" and press the **FLUSH** button to start the Pressurize program. The system will repressurize and make water available through the system.

System Sanitization

Over time and use, the plumbing downstream from the system may require sanitization. The system and downstream plumbing should be sanitized at least once a year. When necessary, follow the **Sanitizing the System and Lines** procedure in the Installation section of this manual.

MAINTENANCE (continued)**Accessing TAP Controller Features****POWER LOSS TO SYSTEM (SYSTEM UNPLUGGED OR SUPPLY INTERRUPTED)**

- Any active valve program is aborted
- Valves reset to normal operations (pressurized, water available)
- Control “BEEPS” four times every 10 seconds for about two minutes
- Control “BEEPS” once every 30 seconds
- Pressing both ▲ and ▼ will silence beeper

FLUSH (BUTTON) AUTOMATIC OPERATION

- **F1** - Close Permeate Valve - Wait for Flow = 0 or 10 sec
- **F2** - Close Inlet Valve
- **F3** - Open Drain Valve - Wait for Flow = 0 or 20 sec
- **F4** - Open Inlet Valve - Wait for 12 sec
- **F5** - Close Drain Valve - Wait for Flow < 3 or 15 sec
- **F6** - Open Permeate Valve

VIEW (BUTTON) – NORMAL OPERATING MODE

Toggles between UFL cartridge % of life and Carbon Elements % of life

VIEW (BUTTON) – SENSOR READINGS

1. Press and hold (in order): **VIEW** button and ▼ button.
2. The red System LED illuminates.
3. Repeatedly pushing the **VIEW** button will scroll through the green LED's, indicating the following information:
LED #1 (Top) VER Value
LED #2 (Middle) Flow Rate (gpm)
LED #3 (Bottom) Differential Pressure (psid)
4. To exit Sensor Readings, press the **FLUSH** button until red LED turns off.

ERROR CODE DESCRIPTIONS

- EC-01** - Differential Pressure = 0 psid, Flow Rate > 0 gpm
- EC-02** - Differential Pressure > 45 psid (at any flow rate)
- EC-03** - Differential Pressure > 0 psid, Flow Rate = 0 gpm
- EC-04** - “VER” value < original “Best VER” value
- EC-05** - Maximum “VER” value exceeded
- EC-06** - Flush Flow < 0.75 gallon
- EC-07** - Flow > 10 gpm
- EC-08** - Insufficient flush
- EC-09** - NVM data re-initialized
- EC-10** - Flow switch #1 fail
- EC-11** - Flow switch #2 fail
- EC-12** - Flow switches erratic
- EC-13** - EEPROM bad

EVENT CODE DESCRIPTIONS

- EV-20** - AC power removed
- EV-21** - AC power restored
- EV-22** - Carbon Element changed
- EV-23** - UFL Filter changed
- EV-24** - Time reached, Flow Rate > 0
- EV-25-31** - Internal software events

MAINTENANCE (continued)**Service Menu Access**

Press and hold, in order, the **VIEW** button and the **▲** button.

1. The red SYSTEM LED illuminates and the "--" appears in the display.
2. Release all buttons. The system displays "--".
3. Use the **▲** and **▼** buttons to select the desired function:
 - "--" - Exit Service Level 2
 - **01** - Set Clock (Year; Month; Day; Hour 0-23; Minute)
 - **02** - Set Flush Time Hour and Minute (Hour 0-23; Minute)
 - **03** - Change Carbon Element
 - **04** - Reset Carbon Element Accumulated Total
 - **05** - Set Maximum Gallons for Carbon Element (x 10,000)
 - **06** - Rinse New UFL Membrane and reset UFL Total
 - **07** - Depressurize UFL System
 - **08** - Pressurize System
 - **09** - Toggle Valves (Green LED illuminated when valve is closed)
Inlet ["VIEW"] #1; Permeate ["▲"] #2; Drain ["▼"] #3
 - **10** - Dump User Data
 - **11** - Dump Events
 - **13** - Zero Differential Pressure Sensor
 - **14** - Display Error Codes
 - **15** - Clear Displayed Error Codes
 - **20** - Set Valve Times
 - **21** - Set Forward Flush Time
 - **22** - Set Maximum VER Value
 - **23** - Set Flush Trigger Point (VER Value)
 - **24** - Reset to Factory Values
5. Press the **FLUSH** button to activate the desired function.
6. To exit the Service Menu, press the **FLUSH** button until the red LED turns off.

PROGRAM DESCRIPTIONS

- Simultaneously pressing the **▲** and **▼** buttons aborts any active program.

03 - (Change Carbon Element)

- **C1** - Close Inlet Valve stage
- **C2** - Open Drain Valve stage
- **C3** - Open Permeate Valve stage

06 - (Rinse New UFL Membrane)

- Operator opens Rinse Ball Valve
- The system runs the **07 - (Depressurize UFL System)** program (see below)
- **d3** Depressurize – Operator: open the Inlet Ball Valve and press the **FLUSH** button
- **r1** Open Inlet Valve – Operator: wait for 1 minute and press the **FLUSH** button
- **r2** Close Drain Valve - Wait for 15 minutes. Operator: close the Rinse Ball Valve and press the **FLUSH** button
- **r3** Wait for 15 minutes. Operator: open the Rinse Ball Valve and press the **FLUSH** button
- **r4** Wait for 5 minutes; Operator: close the Rinse Ball Valve and press the **FLUSH** button
- **r5** Open Drain Valve - Wait for 1 minute
- **r6** Close Inlet Valve, The system is depressurized.
- **d3** Start the system. Operator: Activate the **08 - (Pressurize System)** program (see below)

07 - (Depressurize UFL System)

- **d1** Close Inlet Valve stage
- **d2** Open Drain Valve stage
- **d3** Close Permeate Valve stage

08 - (Pressurize System)

- **P1** - Close Drain Valve stage
- **P2** - Open Inlet Valve stage
- **P3** - Open Permeate Valve stage

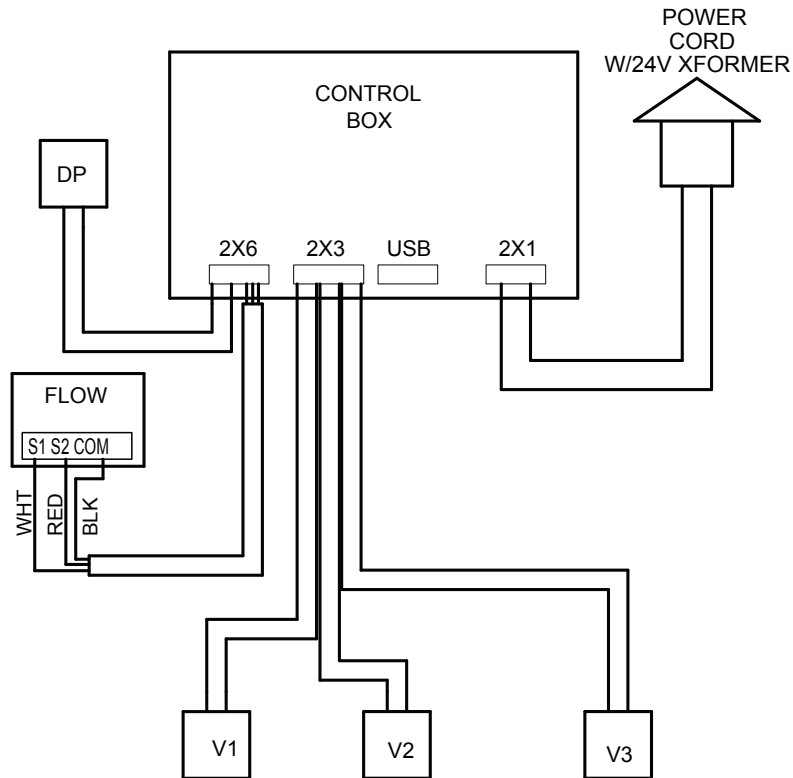
TROUBLESHOOTING

Problem	Possible Cause	Corrective Action
Unit does not have power	The power cord is not plugged into the appropriate outlet or control box.	Plug power cord into the appropriate outlet.
	The unit is plugged into a switched electrical outlet.	Plug the power cord into an unswitched outlet.
	SMART Controller Control Board is inoperable.	Contact your maintenance person or Authorized Service Agency.
	Transformer is defective.	
No water comes out of the filter system.	Inlet/Outlet ball valves closed.	Open the Inlet/Outlet ball valves.
	System depressurized.	Run System Pressurize program.
	Drain Valve is stuck open.	Clean, rebuild, and/or replace the Drain Valve.
	Rinse ball valve is open.	Close the Rinse ball valve.
	The system may be in a flush cycle.	Wait for the flush cycle to end.
	Wiring Harness incorrectly connected to solenoid valves.	Confirm wiring harness connections.
	Wiring harness has broken wire/connection.	Repair or replace the wiring harness.
	Inlet Strainer (if installed) is plugged.	Clean or replace Inlet Strainer
	Ultrafilter Cartridge is plugged.	Replace Ultrafilter cartridge.
	Carbon elements are plugged.	Replace carbon elements.
Low water flow comes out of the filter system.	See above.	See above.
	The inlet water pressure is too low.	Boost the inlet water pressure.
	The outlet check valve may be plugged or defective.	Clean or replace the outlet check valve assembly.
	The inlet flow restrictor may be plugged.	Clean or replace the inlet flow restrictor.
Water tastes bad.	Carbon elements need replacing.	Replace carbon elements.
	Storage/shipping solution not completely flushed out of the system.	Flush the system for a longer period of time; replace carbon elements.
	Biological growth in pipes.	Sanitize plumbing.
	Water condition changed.	Consider installing additional filtration.
	Broken capillaries in ultrafilter cartridge.	Replace Ultrafilter cartridge.
Flush runs continuously.	Drain Valve stuck open.	Clean, rebuild, or replace the Drain Valve.
	Controller sending continuous signals to valves.	Replace the controller.

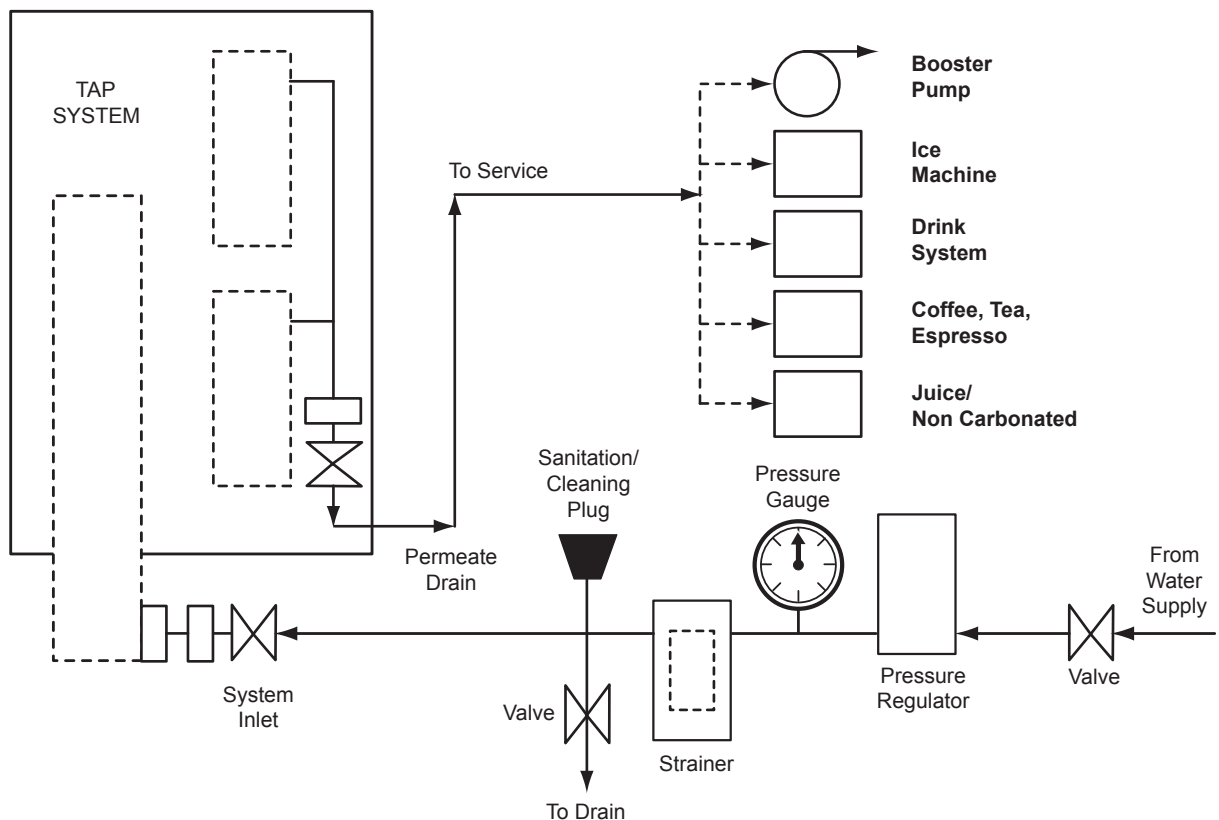
MAINTENANCE (continued)

Problem	Possible Cause	Corrective Action
Flush runs too long. [Factory set single flush cycle is 1 minute; up to 3 consecutive cycles possible (total 3 minutes)]	Flush settings changed from factory setting.	Confirm flush settings; change back to factory settings.
	Inoperable SMART Controller.	Replace the SMART Controller.
Flush occurs at a time of high water usage.	The controller time clock is set incorrectly or setting was lost due to power loss.	Set time clock to correct time.
	Flush time set wrong	Set flush time to acceptable time.
Water splashes at drain during flush.	Drain line not positioned properly.	Reposition the end of the drain line.
	Drain not capable of handling high flow rate.	Clean drain; find alternate drain.
Water leaks at ends of the filter cartridge after changing cartridge.	O-Ring not lubricated.	Lubricate O-ring with food grade lubricant.
	O-Ring is split, cut, or twisted.	Replace O-ring.
	Cartridge end connections are loose.	Tighten with wrench; replace fittings if needed.
Water leaks from Carbon bowl.	O-ring not lubricated.	Lubricate O-ring with food grade lubricant.
	O-ring is split, cut, or twisted.	Replace O-ring.
Water leaks from system fitting or connection.	Fitting broken or loose.	Tighten or replace the fitting.
	Not enough pipe thread sealant used.	Redo the fitting with the proper amount of sealant.

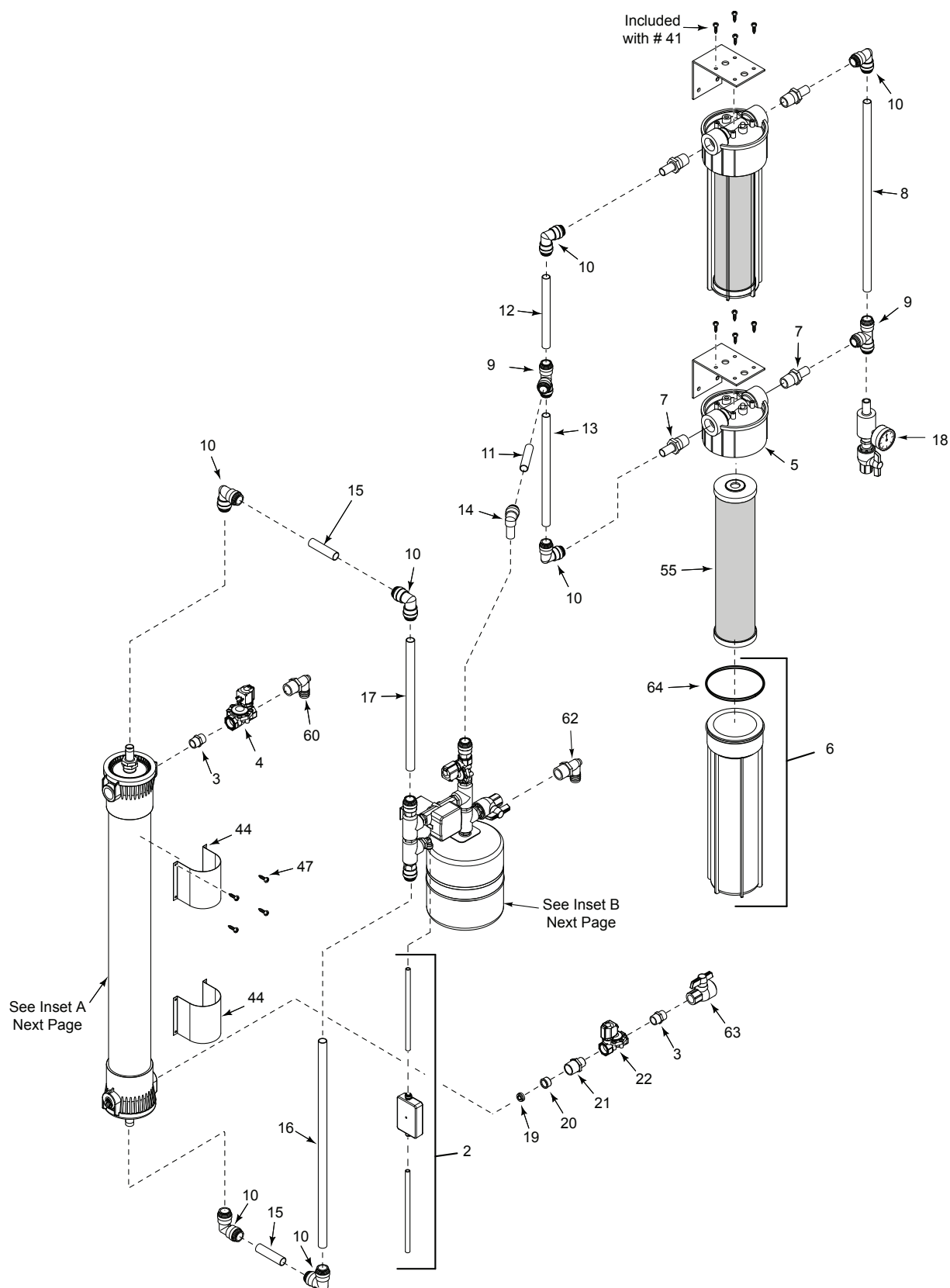
WIRING DIAGRAM



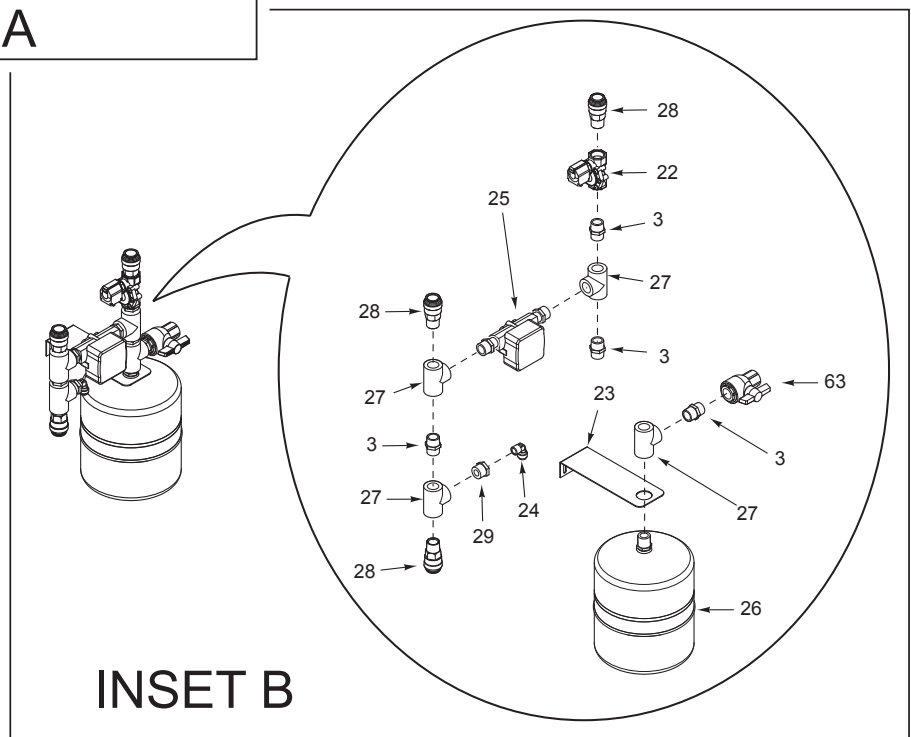
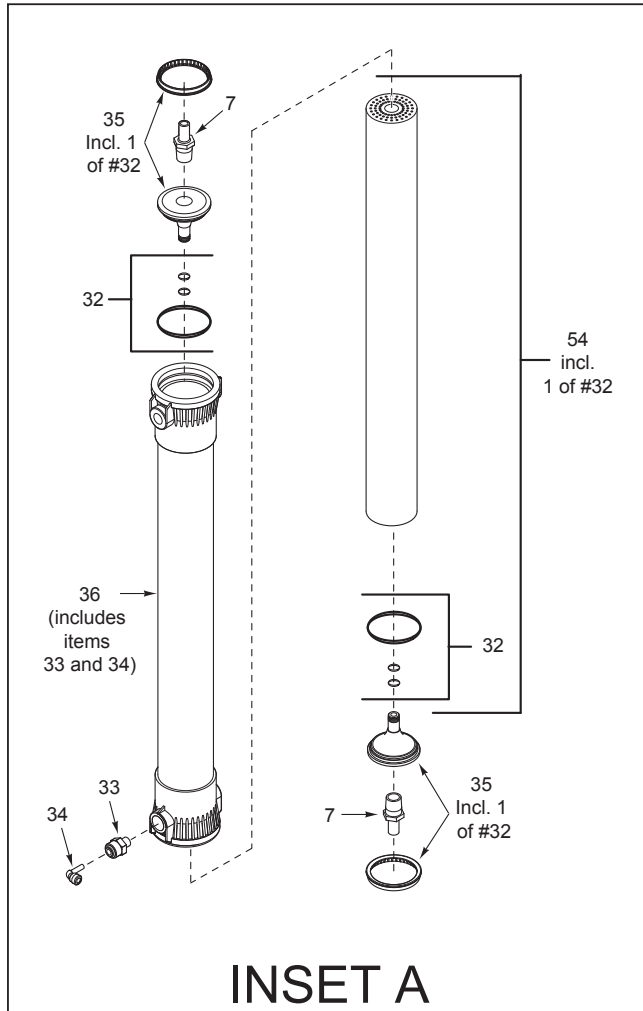
RECOMMENDED EQUIPMENT SCHEMATIC



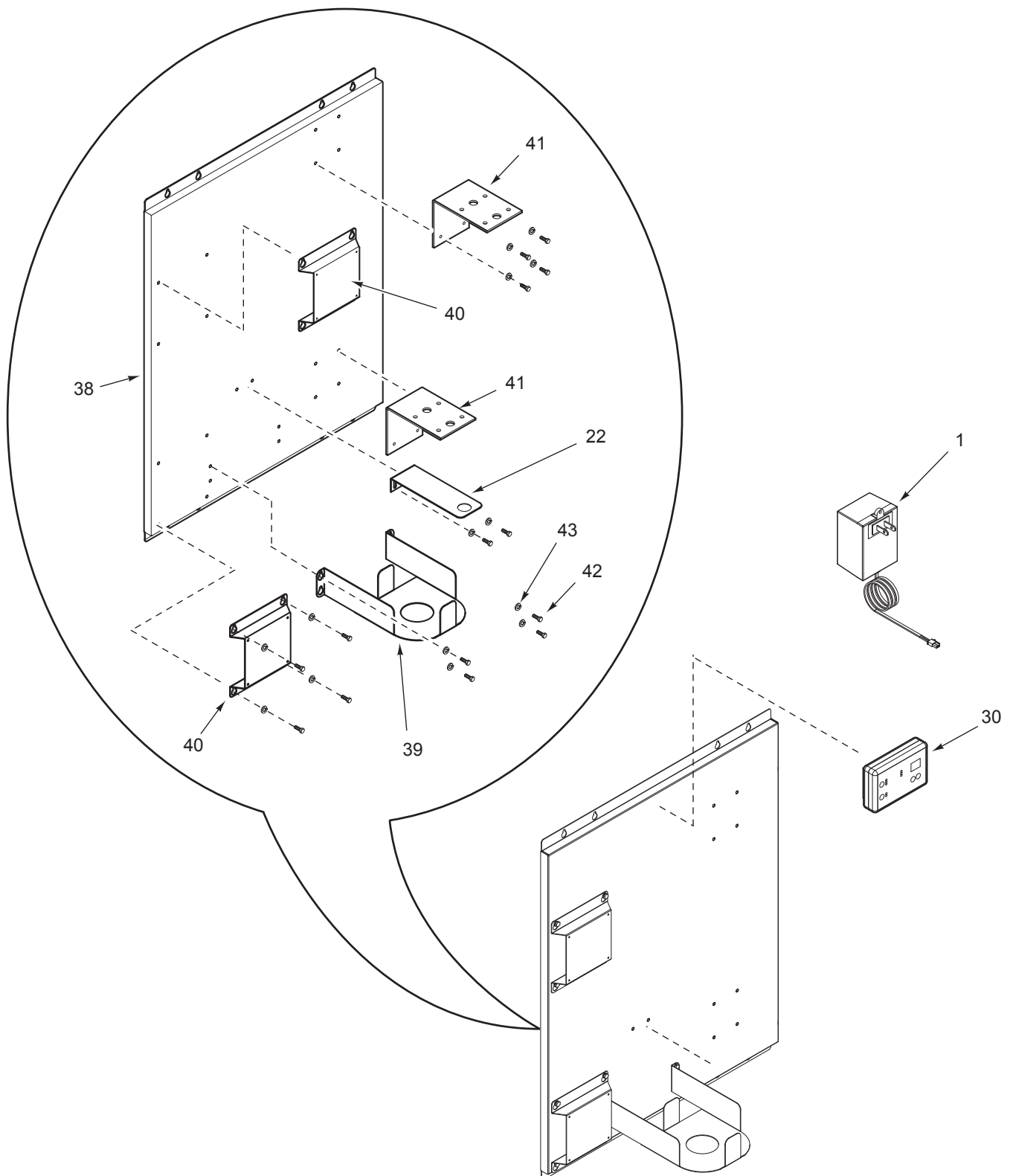
REPLACEMENT PARTS



REPLACEMENT PARTS (continued)



REPLACEMENT PARTS (continued)



REPLACEMENT PARTS (continued)

Replacement Parts can be purchased from an authorized dealer. Contact Antunes Filtration Technologies at 1-630-754-1000 or toll free in the United States at 1-800-253-2991

Item	Part No.	Description	Qty.
1	7000523	Transformer Kit 220 VAC (HKH-01 Plug)	1
	7000524	Transformer Kit 230 VAC (CEE 7/16 Plug)	1
	7000525	Transformer Kit 120 VAC (NEMA 1-15P Plug)	1
2	7000527	TAP Pressure Differential Kit	1
3	2190144	Nipple, Hex 3/4" NPT X 1 1/2" Lg	7
4	4040182	Solenoid Valve Latching W/spring	1
5	2180220	Head, Carbon (Tap System)	1
6	2180221	Carbon Housing and O-Ring	1
7	2190154	Adaptor, 1" Stem	6
8	2010134	Tubing, Pex, 7/8" 25" Lgth	1
9	2190155	Union Tee	2
10	2190156	Union Elbow	7
11	2010131	Tubing, Pex, 7/8" OD 4" Lgth	1
12	2010132	Tubing, Pex, 7/8" OD 9.25" Lgth	1
13	2010133	Tubing, Pex, 7/8" OD 14.5" Lgth	1
14	2190159	Stackable Elbow	1
15	2010128	Tubing, Pex, 7/8" OD 3.5" Lgth	1
16	2010130	Tubing, Pex, 7/8" OD 25.5" Lgth	1
17	2010129	Tubing, Pex, 7/8" OD	1
18	7000529	Outlet Check Valve Kit	1
19	2170121	Regulator, Flow 10 GPM	1
20	2180203	Flow Regular Bushing	1
21	2190160	Nipple, Reducer Hex	1
22	4040181	Solenoid Valve Latching w/o Spring	2
23	0504309	Tank Support	1
24	2080127	Elbow, Fixed, 3/8" Tube Od X 3/8" NPT Thread	1
25	7000528	TAP Water Meter Kit	1
26	2180215	Tank, 2.1 Gallon, 3/4" NPT	1
27	2190130	Tee 3/4" NPT	4
28	2190157	Male Connector 3/4" NPT	3
29	2190165	Reducer Bushing, 3/4-npt To 3/8-npt	1
30	0012011	Assy, Smart Controller	1
31	1001197	Label, TAP System Control Cover	1
32	7000413	O-Ring Replacement Kit	1
33	2080125	Connector, Male, 1/4" Tube OD X 1/8" Npt Thrd	1
34	2080126	Elbow, Plug-in, 1/4" Stem OD X 1/4" Tube OD	1
35	7000442	End Cap Replacement Kit	1

Item	Part No.	Description	Qty.
36	2180222	Housing, Filter, 440 W/sensor Port	1
38	0021484	Weldment Tap Plate	1
39	0504118	Saddle	1
40	0504279	Bracket, Mounting	2
41	0504359	Bracket, Carbon Filter Head	2
42	3250103	Bolt,#1/4-20 X 3/4" Hex Head (S/S)	22
43	3250154	Washer, Lock 1/4" S/S Helical Spring,regular	22
44	0504065	Clamp, 4" Filter UFL	2
45*	0700712	Wire Harness, TAP Valve Control	1
46*	0700713	Wire Harness, TAP (Pressure/flow)	1
47	3080157	Screw, Tap #08-32 X 3/8 Phtrshd;"f";410 S/S	8
48*	1001133	Label, Inlet	1
49*	1001134	Label, Permeate	1
50*	1001135	Label, Drain	1
51*	1010941	Quick Reference Card TAP	1
52*	1010942	Owner's Manual TAP-400 Series	1
53*	1030863	Spec Label #9700700	1
54	7000412	Cartridge Replacement Kit	1
55	7000669	Carbon Element Kit (Single Pk)	1
	7000670	Carbon Element Kit (Dual Pk)	1
56*	2110176	Clamp, Worm 7/8" Dia To 1 1/4" Hose Dia.	2
57*	2140153	Lubricant, Dow Corning High-vacuum Grease	1
58*	2140158	Cord, Loctite Thread Sealing	1
59*	2180226	Filter Wrench (For Giant 20" Housing)	1
60	2190163	Fitting-elbow, 3/4-npt To 3/4" Hose Barb	2
61*	5206019	Tubing, Braided Pvc 20ft	1
62	2190167	Adapter, 3/4" Garden Hose	1
63	2170126	Valve, Ball, PVC, 3/4" NPT Epdm Seals	3
64	0200261	O-Ring, Carbon Bowl (Housing)	1

*** Not Shown**

LIMITED WARRANTY

Equipment manufactured by the Antunes Filtration Technologies Division of A.J. Antunes & Co. has been constructed of the finest materials available and manufactured to high quality standards. These units are warranted to be free from mechanical and electrical defects for a period of one year from date of purchase or 18 months from date of shipment from factory, whichever occurs first, under normal use and service, and when installed in accordance with manufacturer's recommendations. The ultra filtration membrane cartridge is warranted under the same terms and conditions on a pro-rated basis for 24 months from start up or 27 months from date of shipment, which ever occurs first.

To insure continued proper operation of the units, follow the maintenance procedure outlined in the Owner's Manual.

1. This warranty does not cover cost of installation, defects caused by improper storage or handling prior to placing of the equipment. This warranty does not include overtime charges or work done by unauthorized service agencies or personnel. This warranty does not cover normal maintenance, calibration, or regular adjustments as specified in operating and maintenance instructions of this manual, and/or labor involved in moving adjacent objects to gain access to the Equipment. **This warranty does not pay travel, mileage, or any other charges for an authorized service agency to reach the equipment location.**
2. Antunes Filtration Technologies reserves the right to make changes in design or add any improvements on any product. The right is always reserved to modify equipment because of factors beyond our control and government regulations. Changes to update equipment do not constitute a warranty charge.
3. **If shipment is damaged in transit, the purchaser should make a claim directly upon the carrier. Careful inspection should be made of the shipment as soon as it arrives and visible damage should be noted upon the carrier's receipt. Damage should be reported to the carrier. This damage is not covered under this warranty.**
4. Warranty charges do not include freight or foreign, excise, municipal or other sales or use taxes. All such freight and taxes are the responsibility of the purchaser.
5. THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EACH OF WHICH IS HEREBY EXPRESSLY DISCLAIMED. THE REMEDIES DESCRIBED ABOVE ARE EXCLUSIVE AND IN NO EVENT SHALL ANTUNES FILTRATION TECHNOLOGIES BE LIABLE FOR SPECIAL CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR THE BREACH OR DELAY IN PERFORMANCE OF THIS WARRANTY.



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